UNIT 15: WELFARE ECONOMICS

UNIT STRUCTURE

15.1 Learning Objectives

15.2 Introduction

15.3 Welfare and Welfare Economics

15.4 Individual Welfare and Social Welfare

15.5 Role of Value Judgment in Welfare Economics

15.6 Concept of Pigovian Utilitarian Analysis

15.7 Paretian Welfare Economics: Optimality Criterion

15.7.1 Efficiency in Exchange

15.7.2 Efficiency in Allocation of Factors among Producers

15.7.3 Efficiency in the Composition of Output

15.8 Let Us Sum Up

15.9 Further Reading

15.10 Answers to Check Your Progress

15.11 Model Questions

15.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- discuss the concepts of welfare and welfare economics and analyse how the concept of value judgment is related to it
- acquire knowledge about the concepts of individual and social welfare and discuss how both are measured
- explain the theories of Pigovian and Paretian welfare.

15.2 INTRODUCTION

This unit is concerned with the familiarization of learners with some basic concepts of welfare economics. They include welfare economics and its evolution from classical economists like Adam Smith to Arrow. Controversy regarding the place of value judgment in economics and the discussion of concepts like Pigovian and Paretian welfare economics. By

the word welfare we mean the general wellbeing or satisfaction on the part of individual or aggregate level. Welfare economics deals with the allocation of resources in the society for the maximum satisfaction or maximum welfare. Welfare economics is a normative science which is mainly concerned with the basic questions of economics like what ought to be instead of why, what and how to produce.

15.3 WELFARE AND WELFARE ECONOMICS

Welfare economics is that branch of economics that focuses on the optimal and efficient allocation of resources and goods and how this affects the social welfare. By efficient allocation of resources we mean whether any state or situation regarding resource allocation maximizes social welfare. In welfare economics attempt is made to evaluate alternative economic situations from the view point of society's wellbeing. To be clearer, let us assume that total welfare of a country is W. But given the factor endowments and the state of technology, suppose that this welfare could be larger i.e. W*. So now the task of welfare economists are to prove that current state of welfare W is less than optimum state W* and to suggest ways to achieve the state W*. For this economists have to formulate and establish criteria or norms to judge the alternate economic state or policies from the view point of social welfare. These criteria or norms serve as a basis for recommending economic policies which will increase social welfare. According to Prof Lange, "Welfare economics establishes norms of behavior which satisfy the requirements of social rationality of economic activity. The norms of behavior established by welfare economics are supposed to guarantee the optimal allocation of economic resources of the society. Again Prof Baumol wrote "Welfare economics has concerned itself mostly with policy issues which arise out of the allocation of resources, with the distribution of inputs among the various commodities and the distribution of commodities among various consumers" and this definition also emphasized the optimal allocation of resources to maximize social welfare. We know that an interrelationship exists among various parts of the economy and certain particular change in one sector affects the resource

allocation in other sectors. Therefore, the central problem of welfare economics relates to whether a particular change in resource allocation will increase or decrease social welfare. But the difficulties underlying is that it is not possible to measure social welfare objectively as we know that welfare is a subjective thing and associated with the pleasure or satisfaction in the mind of people. Objective measurement of welfare involves making interpersonal comparison of utilities or welfare of different individuals of the society. Welfare economics has been a controversial subject in recent years because it involves value judgments about which there is a sharp difference of opinion among economists. Now-a-days, the establishment of welfare state is the fundamental goal of modern democratic government. So to achieve this objective the state has to satisfy wants of each and every individual of the society. According to Prof J.K Mehta, if we compare the two periods of time, then "a given man has greater welfare in that period in which a larger number of his wants have been satisfied. Conversely, we can say that the smaller the number of wants that remains unsatisfied, the greater is the welfare."



LET US KNOW

The term social rationality of economic activity is to be interpreted as that activity which ensures optimum allocation of resources and therefore guarantee maximum social welfare.

15.4 INDIVIDUAL WELFARE AND SOCIAL WELFARE

An individual welfare at any given time or during a period of time is measured by the amount of satisfaction that the individual enjoys at that time or during that period of time. The individual always tries his best to maximize his welfare. However it is difficult to measure welfare as it is a subjective thing and rather we can say it is a state of mind. So attempt has been made to link individual welfare with individual choice. In other words, a person's welfare map is assumed to be similar to his preference map. This means that when a person will be in his most preferred position, his welfare

will be maximized. For a better understanding let us explain it with an example. Let us suppose that a person chooses position A rather than position B. This means that A is his preferred position over B. So welfare at position A is higher than the welfare at position B. So his welfare will be maximized when he is in position A. Individual welfare is a function of both economic and non economic variables. Classical economists distinguished between general welfare and economic welfare. Economists generally agree that general welfare is determined by large number of economic and non economic factors and the non economic factors are exogenous in nature.



LET US KNOW

Exogenous variables are those variables which are determined outside the system. In case of welfare economics non economic variables are treated as exogenous which means that they can influence the economic variables without being influenced by them.

Social welfare refers to the sum total of satisfaction of all the individuals of the society. The measurement of social welfare is a bit intricate because it is difficult to record exactly the pain and pleasure of different individuals of the society. The measurement of social welfare requires some ethical standard and interpersonal comparison of utilities, both of which involve subjective value judgement. According to classical economists like Adam Smith, growth of gross national product (GNP) should be viewed as the criterion of social welfare. He believed that economic growth leads to increased employment opportunity and goods available for consumption. On the other hand, cardinalists proposed the use of the law of diminishing marginal utility as a criterion of welfare. However this approach of measuring social welfare has a serious flaw as it assumes that all individuals have identical utility functions for money whether in reality individuals differ in their attitude towards money. Later the criterion based on economic efficiency was used to measure social welfare which was known as Pareto optimality. Interpersonal comparison of utility was made explicit in social welfare function to measure social welfare, and finally, Arrow advocated

majority rules and voting to determine social choice and measure social welfare.



LET US KNOW

Cardinalists: The group of economists including Marshall who were of the opinion that utility could be measured cardinally or numerically.



LET US KNOW

Pareto Optimality: Vilfredo Pareto evaluated the criterion to judge the welfare of society which was known as Pareto Optimality. According to this criterion, any change that makes at least one individual better off without making any other worse off is an improvement in social welfare. On the other hand, social welfare will decrease if a certain change makes no individual better off while it makes at least one individual worse off. So we can define Pareto optimality as the optimal economic state or situation in which allocation of resources is such that by any rearrangement of them it is not possible to make any individual better off without making anyone worse off.



LET US KNOW

Social Welfare Function of Bergson and Samuelson: To measure social welfare Bergson and Samuelson suggested the use of explicit value judgement in the form of social welfare function. A social welfare function is similar to individual consumer's utility function. It provides a ranking of alternative states or situations in which different individuals enjoy different utility levels. This can be expressed with social indifference curve which is defined as the locus of combinations of utilities of A and B (let us suppose the society comprises of two individuals A and B) which yields same level of social welfare.

LET US KNOW



Prof Arrow in his work "Social Choice and Individual Values" tried to overcome the difficulties of Bergson Samuelson's social welfare function and put forward his famous impossibility theorem. According to Arrow, social choice will be determined by majority rules and can be achieved through voting.

15.5 ROLE OF VALUE JUDGMENT IN WELFARE ECONOMICS

Value judgments play a crucial role in welfare economics. We have known already that by value judgement or values we mean the conceptions of people regarding what is good or bad. These conceptions regarding values of the people are based on ethical, political, philosophical and religious beliefs of the people and not based on any scientific logic or laws. There is a great controversy regarding whether value judgement should have any role to play in welfare economics. L. Robbins and his followers were of the opinion that inclusion of value judgement would make welfare economics unscientific. Therefore according to them economists should refrain from making value judgements. They thought that making interpersonal comparison of utility is unscientific as utilities being subjective cannot be compared. So the concept of Pareto optimality criterion came in force to evaluate whether social welfare increase or decrease as a result of a specific change in economic state, situation or policy. However Pareto optimality cannot address that change in economic state or situation which makes some individuals better off and some other worse off. This is because such changes involve interpersonal comparison of utility which were ruled out by Pareto. To judge the welfare in such a situation, Kaldor and Hicks propounded a new welfare criterion which is known as compensation principle. According to them any change that make some people better off and some other worse off enhances social welfare if those who gain can compensate the loser and still be better off than before. Kaldor and Hicks claimed that their compensation principle is free from interpersonal comparison of utility and

value judgments. Their contribution was the basis for new welfare economics. Scitovsky and Little have also made significant contribution towards the development of new welfare economics which is free from value judgments. However Prof Baumol rightly pointed out that both Kaldor and Scitovsky test operates on the basis of implicit value judgements. The very idea that gainer could compensate the loser involves value judgements.

Later Bergson and Samuelson propounded social welfare function where they made value judgments explicit and with this social welfare function, the economists can judge the social desirability of certain economic reorganization and policy change. These value judgements according to Bergson "must be determined by its compatibility with the values prevailing in the community the welfare of which is being studied." Bergson-Samuelson's social welfare function is an ordinal index of the society's welfare and a function of utility level of all individuals constituting the society. However this concept was criticized on the ground that it is too individualistic and has limited practical significance. Followers of Bergson like Samuelson and I.M.D. Little are of the view that welfare economics cannot be separated from value judgements, because any statement about increase or decrease of social welfare necessarily involves value judgements. In support of Bergson's social welfare function, Prof Baumol writes, "Essentially the Bergson's criterion must be judged right, if not very helpful. To decide whether B is better than A, we must certainly employ some value judgements and unless these value judgements are explicit they must be treated with suspicion. According to Prof K.E. Boulding, one must admit that the task of making value judgements explicit is very important.

Thus, according to several modern economists like Bergson, Samuelson, Little, Boulding etc welfare economics cannot be free from value judgements. In fact the study of welfare economics has been developed to make policy recommendations to promote social welfare. For doing so economists cannot escape from introducing value judgement since the matter here is the happiness and satisfaction of the society. So we can conclude by the quote of Little that "Welfare economics and ethics cannot, then, be separated. They are inseparable because welfare terminology is a

value terminology… Getting rid of value judgement would be throwing the baby away with the bathwater."



ACTIVITY 15.1

Match the following Set A with Set B

Set A	Set B
1. Pareto criterion	a. Bergson- Samuelson
2. Compensation Principle	b. V. Pareto
3. New Welfare Economics	c. K.J.Arrow
4. Social Welfare Function	d. Scitovsky
5. Impossibility Theorem	e. Kaldor Hicks



CHECK YOUR PROGRESS

Q 1: Welfare economics is a _____ economics. (Fill in the blanks.)

Q 2: What do you mean by value judgments? (Answer in about 20 words).

.....

.....

Q 3: Social welfare is a sum total of _____ welfare. (Fill in the blanks.)

15.6 CONCEPT OF PIGOVIAN UTILITARIAN ANALYSIS

A.C. Pigou was considered as the founder of Welfare economics. In his books entitled *Wealth and Welfare* and *Economics of Welfare,* Pigou has discussed that welfare and good can be used interchangeably and he in fact defined good as well as welfare as the state of conscious life. So when an individual's desires are met welfare is said to occur. Social welfare is regarded as the aggregate of all individual welfares of society. According to Pigou, economic welfare was a part of general welfare which could be brought directly or indirectly into relation with measuring rod of money. Thus, economic welfare, in the Pigovian sense, implies the satisfaction of utility

derived by an individual from the use of goods and services which can be bought by money. The following are the conditions of Pigovian Welfare.

- The first condition states that increase in national income would lead to increase in welfare given the constant taste and preference
- The second condition emphasized distributional aspect. If national income remains constant then transfer of income from wealthy to poor increases welfare.

According to Pigou, the private product diverges from the social product due to the existence of external economies or diseconomies thereby leading to divergences between private and social costs and benefits. Externality is the spillover effect of production and consumption on third party. If this effect is positive then it is called positive externality and if it is negative then it is called negative externality. For example due to expansion of a firm in a particular area it may be possible to get inputs like labor, raw materials etc at low rates by some other firms in that area. It is an example of positive production externalities. In such cases social marginal benefits would exceed private marginal benefits and private costs would exceed social costs. For the expanding firm does not receive any remuneration for the costs incurred by it and benefits which it has conferred on others. Similarly, industry emitting smoke causes pollution in the nearby area and increase medical costs for the residents of the area which is an example of negative externalities of production. Prof Pigou introduced Pigovian Tax to correct such problems of externality. This is the tax which is applied to market activities that generates negative externalities. For example tax on alcohol, tax on contributing to pollution etc.

However, Pigou's analysis was criticized on the ground that it uses money as the measuring rod of economic welfare which is highly unstable. It assumes that all the people have same marginal utility for money which is not realistic. His welfare analysis based on cardinal utility analysis and involvement of interpersonal comparison of utility which many thought as unscientific. Moreover, Pigou was criticized for lack of originality in his ideas and analysis by O'Donnell.

15.7 PARETIAN WELFARE ECONOMICS: OPTIMALITY CRITERION

Pareto optimality criterion was one of the path breaking contribution to welfare economics. This criterion was put forward by famous Italian economist Vilfredo Pareto (1848-1923) who was considered as founder of modern welfare economics. Pareto's analysis was free from value judgments and interpersonal comparison of utility and based on ordinal utility analysis. According to this criterion, any change that makes at least one individual better off and no one worse off is an improvement in social welfare and conversely, a change that makes no one better off but at least one individual worse off is a decrease in social welfare. Pareto optimal is a situation in which it is impossible to make anyone better off without making someone worse off. So now the problem is that how to achieve Pareto optimum. To attain this situation three marginal conditions must be satisfied. These are as follows

- Efficiency in Exchange or efficiency in distribution of commodities among the consumer.
- Efficiency of Production or efficiency in allocation of factors among producers.
- Efficiency in product mix or efficiency in allocation of factors among commodities

15.7.1 Efficiency in Exchange

Exchange efficiency means that the distribution of a given output of goods between individuals in a society should be such that it should not be possible to make someone better off without making anyone else worse off. When such exchange efficiency is achieved there is no scope for exchange between individuals which makes all individuals better off or anyone better off without making someone worse off. Or in other words we can say that distribution of commodities X and Y between two consumers A and B is efficient if it is impossible to redistribute these goods to increase the utility of

one individual without reducing the utility of other. This situation is achieved when:

$$MRS^{A}_{X, Y} = MRS^{B}_{X, Y}$$

Therefore we can conclude that the marginal condition for a Pareto optimality or efficient distribution of Commodities requires that the MRS between two goods be equal for all the consumers.



LET US KNOW

MRS: Marginal rate of substitution between X and Y is the rate at which a consumer is ready to give up units of Y for one extra unit of X and maintain the same level of utility.MRS is nothing but the slope of indifference curve.

15.7.2 Efficiency in Allocation of Factors among Producers

The second condition for Pareto optimum requires that the available factors of production should be used by the society in the production of different goods in such a manner that it is impossible to increase the output of one good without decrease the output of another or to increase the output of both goods by any reallocation of factors of production. This situation would be achieved if the marginal rate of technical substitution between any pair of factors must be the same for any two firms product and using both the factors to produce the products. The fulfillment of this condition ensures optimum allocation of given amount of factors among products.

i.e $MRTS^{X}_{L,K} = MRTS^{Y}_{L,K}$

So the second marginal condition of Pareto optimality requires that the MRTS between labor and capital be equal for all the commodities produced by different firms.



LET US KNOW

MRTS: Marginal rate of technical substitution between two factors labour and capital is the rate at which a producer is ready to sacrifice units of capital for one

extra units of labour and maintain the same level of output. The MRTS is nothing but the slope of isoquant.

15.7.3 Efficiency in the Composition of Output

The third possible way of increasing social welfare is a change in the product mix. To explain the third marginal condition of Pareto optimality we use the production possibility curve (PPC). The slope of PPC is called the marginal rate of product transformation ($MRPT_{XY)}$ and it shows the amount of Y that must be sacrificed in order to obtain an additional unit of X. In other word the MRPT is the rate at which goods can be transformed into another. The marginal condition for a Pareto optimal or efficient composition of output requires that the MRPT between any two commodities be equal to the MRS between the same two goods. i.e.,

$MRPT_{XY}=MRS^{A}_{XY}=MRS^{B}_{XY}$

However, Paretian welfare economics cannot tell us what happens when some changes in economic policy make some individuals better off and some other worse off. Whether such changes will lead to increase in social welfare or not, cannot be judged by Pareto criterion. Moreover, it was also criticised for being static.



CHECK YOUR PROGRESS

Q 4: What is externality? (Answer in about 20 words.)

.....

.....

Q 5: What do you mean by efficiency in exchange? (Answer in about 30 words.)

.....

.....

.....



15.8 LET US SUM UP

- Welfare means the general wellbeing, pleasure and satisfaction of individual or society.
- Welfare economics is a normative economics.
- Aggregate of individual welfare is social welfare.
- Value judgments have a role to play in welfare economics and value judgments and welfare economics are inseparable.
- Pigouvian welfare economics deals with both production and distribution aspect and viewed economic welfare from monetary side.
- Paretian welfare is free from value judgments and interpersonal comparison of utility and involves the concept of efficiency.
- Pareto optimum is a situation where it is impossible to make any one better off without making any one worse off. Three marginal conditions are required to fulfill Pareto optimum or Pareto efficiency.



15.9 FURTHER READING

1) Ahuja, H. L. (2006). *Modern Economics.* New Delhi: S. Chand & Co.

2) Koutsoyiannis, A. (1979). *Modern Microeconomics*. New Delhi: Macmillan India.

15.10 ANSWER TO CHECK YOUR PROGRESS

Ans to Q No 1: Normative economics

Ans to Q No 2: By value judgments or values we mean the conception of people regarding what is good or bad.

Ans to Q No 3: Individual welfare

Ans to Q No 4: Externality is the spillover effect of production or consumption on third party.

Ans to Q No 5: Exchange efficiency means that the distribution of a given output of goods between individuals in a society should be such that it should not be possible to make someone better off without making anyone else worse off.



15.11 MODEL QUESTIONS

A) Very Short Questions

Q.1: State whether the following statements are true (T) or false (F).

a) Welfare economics is a branch of positive economics. (T/F)

b) Social welfare can be obtained from individual welfare. (T/F)

c) Pigovian welfare economics is free from value judgments. (T/F)

Q.2: Fill in the blanks

a) Pigovian tax is applied to market activities that generates _____externality.

b) Pareto criterion is free from _____.

c) Bergson Samuelson's social welfare function made _____ explicit.

Q 3: Define individual welfare.

Q 4: What is social welfare?

Q 5: What is Pareto optimality.

B) Short questions. (Answer each question in about 150 words.)

Q 1: Define welfare economics.

Q 2: What do you mean by externality? Give the example of positive and negative externality

Q 3: What is Pigovian tax? Give example.

Q 4: State the three marginal conditions of Pareto optimality.

C) Long Questions. (Answer each question in about 300-500 words.)

Q 1: Discuss the role of value judgments in welfare economics.

Q 2: Explain the conditions of Pareto optimality.

Q 3: Discuss the concept individual and social welfare.

****



REFERENCES (For All Units of the Course)

- Ajuja, H.L. (2007). *Macroeconomics: Theory and Policy*. New Delhi: S.Chand & Co.
- Ahuja, H. L. (2006). *Modern Economics.* New Delhi: S. Chand & Co.
- Chopra, P.N.(2008). *Micro Economics*. Ludhiana: Kalyani Publishers.
- Dewett, K.K. (2005). *Modern Economic Theory*. New Delhi: S.Chand & Co.
- Dillard, D. (2005). *The Economics of John Maynard Keynes*: *The Theory of a Monetary Economy.* USA: Kessinger Publishing, LLC.
- Diulio, E. A.(1983). *Theory and Problems of Macroeconomic Theory*. Singapore: Schaum's Outline Series, McGraw-Hill Book Company.
- Jhingan, M. L. (2014). *Advanced Economic Theory. New Delhi:* Vikash Publishing House.
- Koutsoyiannis, A. (1979). *Modern Microeconomics*. New Delhi: Macmillan India.
- Maddala,G.S. and Miller, E. (2004). *Microeconomic – Theory and Applications.* New Delhi: Tata Mc-Graw Hill.
- Pindyck, R.S. and Rubinfeld, D. L. (2006). *Microeconomics*. New Delhi: Prentice-Hall India.
- Rana, K.C. & Verma, K.N. (2009). *Macroeconomic Analysis*. Jalandhar: Vishal Publications.
- Shapiro, E. (2013). *Macroeconomic Analysis*. New Delhi: Galgotia Publications Pvt. Ltd..
- Sundharam, K.P.M. & Vaish, M.C. (1997). *Microeconomic Theory*. New Delhi: S. Chand & Co.